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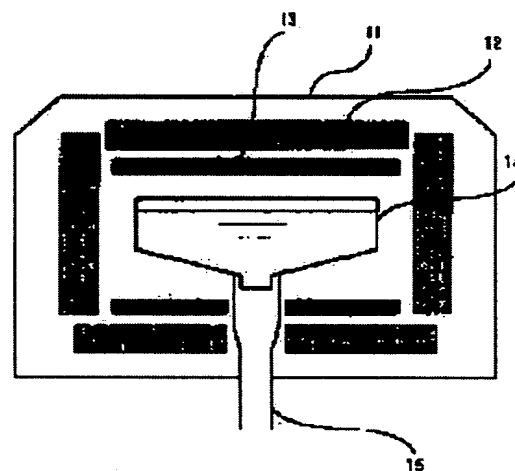
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## (54) PRODUCTION APPARATUS FOR FLUORITE OF LARGE DIAMETER AND ITS PRODUCTION

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To obtain a single crystal of large diameter, by arranging a crucible in a vacuum electric furnace having a ceiling heater and a bottom heater, uniforming the temperature of a melt in the interior of the crucible in the radius direction, making a temperature gradient in the growth direction of a single crystal and growing crystal.

**SOLUTION:** A crucible 14 supported on a supporting rod 15, a ceiling heater 13, a bottom heater, etc., are arranged in the interior of a bell jar 11 of a vacuum electric furnace and a thermocouple is placed in the vicinity of each heater to carry out control in quick response. In order to prevent a solidified part from cracking, the height of an ingot is  $\leq 200$  mm. Then an electric source is applied, the ceiling heater 13 is made about  $1,550^{\circ}\text{C}$  and the bottom heater about  $1390^{\circ}\text{C}$  so as to give 8 k/cm temperature gradient. The temperature difference of  $160^{\circ}\text{C}$  is maintained to grow crystal with reducing temperature at  $1^{\circ}\text{C}$  per hour. After the ceiling heater 13 is dropped to about  $1,350^{\circ}\text{C}$ , both the heaters are adjusted to about  $1,300^{\circ}\text{C}$  and the ingot is gradually cooled so that it is not cracked to give a single crystal having  $\geq 250$  mm diameter.



## LEGAL STATUS

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